

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A method of replacing a portion of a disc of a patient, the disc having an annulus and a nucleus, comprising:

inserting an access device through an incision in the skin of the patient generally postero-laterally and advancing the access device until a distal portion thereof is located adjacent the spine, said access device being inserted in a first configuration having a first cross-sectional area at the distal portion thereof;

configuring said access device such that the distal portion thereof is enlarged from the first configuration to a second configuration wherein the distal portion extends across at least a portion of the disc;

advancing an annulotomy tool through the access device to the intervertebral space;

forming an aperture in the annulus;

advancing a disc evacuation tool through the access device and through the aperture;

removing at least a portion of the nucleus through the access device to at least partially evacuate the intervertebral space; [[and]]

delivering a replacement disc nucleus into the partially evacuated intervertebral space through the access device, the replacement disc nucleus including an expandable element with a hydrogel core configured to expand from a dehydrated state to a hydrated state, the hydrogel core being configured to have a dehydrated shape in the dehydrated state that facilitates insertion of the replacement disc nucleus through an opening in an annulus fibrosus and being generally different from a hydrated shape of the hydrogel core in the hydrated state; and

wherein the hydrogel core is surrounded by a constraining jacket, the constraining jacket being flexible but substantially inelastic.

2-14. (cancel)

15. (currently amended) The method of Claim [[14]] 1, wherein the hydrogel core comprises a keratin hydrogel.

16. (currently amended) The method of Claim [[14]] 1, wherein the constraining jacket is porous enough to allow the hydrogel core to interact with bodily fluids.

17. (original) The method of Claim 16, wherein the hydrogel core is dehydrated prior to insertion.

18. (currently amended) ~~The method of Claim 1,~~ A method of replacing a portion of a disc of a patient, the disc having an annulus and a nucleus, comprising:

inserting an access device through an incision in the skin of the patient generally postero-laterally and advancing the access device until a distal portion thereof is located adjacent the spine, said access device being inserted in a first configuration having a first cross-sectional area at the distal portion thereof;

configuring said access device such that the distal portion thereof is enlarged from the first configuration to a second configuration wherein the distal portion extends across at least a portion of the disc;

advancing an annulotomy tool through the access device to the intervertebral space;

forming an aperture in the annulus;

advancing a disc evacuation tool through the access device and through the aperture;

removing at least a portion of the nucleus through the access device to at least partially evacuate the intervertebral space; and

delivering a replacement disc nucleus into the partially evacuated intervertebral space through the access device;[[.]]

wherein the replacement disc nucleus comprises:

an ellipsoidal body having a convex top side for contracting and articulating with an end-plate cartilage of a top vertebrae and a convex bottom side for an immobile contact with a bottom vertebrae;

said convex top side having a dome crest that exceeds a dome crest of said convex bottom side by a factor of approximately three; and

a peg extending from said bottom side of the ellipsoidal body and providing for a pinning action with respect to said bottom vertebrae.

19-20 (cancel)

21. (currently amended) A method of treating the spine of a patient, comprising:
inserting an access device through a minimally invasive incision in the skin of the patient;

advancing the access device until a distal portion thereof is located adjacent the spine;
expanding said access device from a first configuration to a second configuration, the second configuration having an enlarged cross-sectional area at the distal portion thereof such that the distal portion extends across at least a portion of a disc; and

delivering a replacement disc nucleus into an intervertebral space through the access device;

wherein delivering the replacement disc nucleus into the intervertebral space includes inserting a hydrogel core configured to expand from a dehydrated state to a hydrated state within the intervertebral space.

22- 27. (cancelled)